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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10:067,068	02/06/2002	Thomas P. Glenn	W2K1016	4056

23504 7590 09/02/2003

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SCOTTSDALE, AZ 85251

EXAMINER

CRUZ, LOURDES C

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 09/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/067,068

Applicant(s)

GLENN ET AL.

Examiner

Lourdes C. Cruz

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 5-14 and 21-26 is/are rejected.
- 7) ☒ Claim(s) 2-4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 21 January 2003 is: a) ☐ approved b) ☒ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 29. 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

All figures showing cross sectional views of the invention are improperly crosshatched. All of the cross hatching patterns should be selected from those shown on page 600-81 of the MPEP based on the material of the part. Also see 35 CFR 184 (h)(3) and MPEP 608.02.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 5, 7-14, 21,22, and 24-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Hughes (US 6403881).

Hughes discloses an optical integrated circuit comprising a substrate 2 having a conductive pattern 7 disposed on a surface thereof; a die mounted to substrate and electrically coupled to the conductive pattern for providing an electronic function of the IC; a support structure 3 surrounding the die and bonded to the substrate; a transparent cover 12 mounted over the die such that an optically active surface of the die is accessible through the transparent cover; and a plurality of external contacts 11

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electrically coupled to the conductive pattern for providing an electrical interface o the die.

Hughes also discloses:

- The support structure is a thin metal sheet having an aperture for accepting the die (Col. 3, 32+)
- The transparent cover bonded to the die by optically transparent adhesive, and an encapsulate between the support structure and the cover die (Col. 5, 30+)
- A surface of the cover opposite the die is substantially conformal to a top surface of the support layer opposite the top
- The transparent cover is bonded to the support structure
- The cover is a glass cover
- The plurality of contacts 11 are solder balls forming a BGA, and the substrate is perforated to accept a portion of the balls (see vias)
- The solder balls contact the conductive pattern through the perforations
- Wires 8 for coupling the conductive pattern to the die
- See that Hughes discloses through holes 11 for connection of the die through wires 8 to conductor 7, down the vias in the through holes

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes in view of Bauer et al. (US 6130448).

Hughes teaches all the above. However, Hughes fails to specifically disclose:

- The support structure is a thin **epoxy film**

See that:

Bauer et al. discloses an optical integrated circuit comprising a tape 28 having a conductive pattern 30 disposed on a surface thereof; a die mounted to the tape and electrically couples to the conductive pattern for providing an electronic function of the IC; a thin epoxy film support structure 46 (**Col. 5, 50+**) surrounding the die and bonded to the substrate; a transparent cover 48 mounted over the die such that an optically active surface of the die is accessible through the transparent cover; and a plurality of external contacts 44 electrically coupled to the conductive pattern for providing an electrical interface to the die.

Bauer et al. also discloses:

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- Wires 32 for connecting the die to the conductive pattern
- A glass cover

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate into the structure of Hughes the thin epoxy film support structure of Bauer et al. in order to provide the structure of Hughes with a material that will avoid stress and the mismatch of CTEs that cause the "popcorn" effect.

#### ***Allowable Subject Matter***

Claims 2-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. See that the claims recite or depend upon a claim that recites a flexible plastic tape.

#### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection. These new rejections were necessitated by the amendments.

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure includes US 6528892 to Caletka et al. wherein a variety of ways if connecting ICs to PCBs is disclosed. In particular the well-known flexible interposer for connecting a device to a PCB to avoid TCE miss-match is discussed. Low stiffness chip carriers as an alternative are also discussed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elle Cruz whose telephone number is 703-306-5691. The examiner can normally be reached on M-F 10-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers

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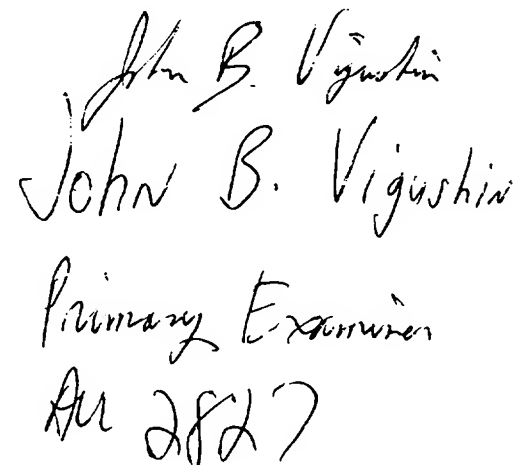
for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Elle Cruz  
August 23, 2003

Lourdes C. Cruz  
Examiner  
Art Unit 2827



John B. Vigushin  
Primary Examiner  
AU 2827